CLAIM AMENDMENTS

1-16. (Canceled)

17. (Currently amended) A process for producing a catalytic converter, in which catalytically active material is ~~deposited~~ electrodeposited on a metallic substrate as a porous or non-cohesive layer, as a result of the substrate being immersed in an electrolyte which contains the catalytically active material ~~and voltage being applied between the substrate and a counterelectrode~~, comprising:

~~depositing~~ electrodepositing the catalytically active material ~~on a~~ on the metallic ~~substrate, and applying~~ substrate by applying an electric direct voltage, on which an alternating voltage is superimposed in such a way that ~~the sign~~ polarity of the sum voltage of the direct and alternating ~~voltage~~ voltages does not change, between the substrate and ~~the~~ a counterelectrode.

18. (Previously presented) The process according to Claim 17, wherein the direct voltage at least corresponds to the deposition potential of the catalytically active material.

19. (Currently amended) The process according to Claim 17, and further comprising providing the substrate, on its surface on which electrodeposition is to ~~be coated~~ occur, with a predetermined surface roughness prior to the ~~deposition~~ electrodeposition.

20. (Previously presented) The process according to Claim 19, wherein the surface roughness is in the range from 0.3 µm to 10 µm.

21. (Previously presented) The process according to Claim 17, wherein the catalytically active material is deposited as substantially spherical metal clusters as a result of the alternating voltage component being applied with a frequency of over 50 Hz.

22. (Previously presented) The process according to Claim 17, wherein the catalytically active material is deposited as substantially dendritic metal clusters as a result of the alternating voltage component being applied with a frequency of between 5 and 50 Hz.

23. (Previously presented) The process according to Claim 17, wherein the catalytically active material is a precious metal, a mixture of precious metals or catalytically active materials, or a mixture of precious metals and catalytically active materials.

24. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially spherical platinum clusters ~~are deposited~~ on said stainless steel substrate from the electrolyte, the electrolyte

being a solution of a platinum compound in 0.1 M H_2SO_4 with a platinum content of approximately 0.1 g/l as a result of ~~a modulated voltage, comprising~~ the sum voltage which comprises said direct voltage, which has a magnitude of approximately 1.3 volts, superimposed with said alternating voltage, with a voltage swing of 0.3-1 volt and a frequency of 50-100 ~~Hz, being applied between said stainless steel substrate and said counterelectrode~~ Hz.

25. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially dendritic platinum clusters ~~are deposited~~ on said stainless steel substrate from the electrolyte, the electrolyte being a solution of a platinum compound in 0.1 M H_2SO_4 with a platinum content of approximately 0.1 g/l as a result of ~~a modulated voltage, comprising~~ the sum voltage which comprises said direct voltage, which has a magnitude of approximately 1.3 volts, superimposed with said alternating voltage, with a voltage swing of 0.3-1 volt and a frequency of 5-15 ~~Hz, being applied between said stainless steel substrate and said counterelectrodeK~~ Hz.

26. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially dendritic rhodium clusters ~~are deposited~~ on said

stainless steel substrate from the electrolyte, the electrolyte being a solution of a rhodium compound in 0.1 M H_2SO_4 with a rhodium content of approximately 0.2 g/l, as a result ~~of a said~~ of said direct voltage, which has a magnitude of 1.4-1.6 volt, applied between said stainless steel substrate and said counterelectrode, and said alternating voltage (V_{ac}) ~~with~~, which has a voltage swing (V_{PP}) of 0.3-1.5 volts and a frequency of 5-15 Hz ~~being~~, which is superimposed on said direct voltage.

27. (Previously presented) The process according to Claim 24, wherein the platinum clusters have sizes between 2 nm and 1 µm.

28. (Currently amended) The process according to Claim 17, wherein the counterelectrode is formed ~~by platinum-coated~~ from titanium which is coated by platinum.

29. (Previously presented) The process according to Claim 25, wherein the platinum clusters have sizes between 2 nm and 1 µm.